

REMARKS

In the Office Action mailed May 14, 2009 the Office noted that claims 1-13 were pending and rejected claims 1-13. Claims 1-13 have been amended, no claims have been canceled, and, thus, in view of the foregoing claims 1-13 remain pending for reconsideration which is requested. No new matter has been added. The Office's rejections and objections are traversed below.

OBJECTION TO THE SPECIFICATION

The disclosure stands objected to for informalities. In particular, the Office asserts that it is unclear how to compare nitrogen-enriched air with nitrogen-enriched air. The Applicants have amended the Specification. The Applicants submit that no new matter is believed to have been added by the amendment of the Specification.

Withdrawal of the objection is respectfully requested.

CLAIM OBJECTION

Claim 1 stands objected to for informalities. In particular, the Office asserts that to supply in claim 1 should not be hyphenated. The Applicants have amended the claim in conformity with the comments of the Office.

Withdrawal of the objection is respectfully requested.

REJECTIONS under 35 U.S.C. § 112

Claims 1-13 stand rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. In particular, the Office asserts that the claims use relative terms and have antecedent basis issues.

The Office on page 3 states that it unclear what pressure difference and design threshold are being claims.

However, the Applicants respectfully submit that the terminology is wholly clear as the pressure difference across the wall of the tank is determined by the difference between the pressure acting within the tank and the ambient outside pressure. As the Office notes, it would in theory be possible to equalize the pressure difference across the walls of the fuel tank simply allowing venting of ambient atmosphere into the tank. However, the invention is particularly concerned with ensuring this does not happen. As the aircraft descends and the ambient pressure increases, inward venting would mean that normal, oxygen-rich air would enter into the fuel tank thereby creating a potential explosion risk. Thus, in the present invention nitrogen-enriched air at a higher flow rate is supplied during descent to maintain the pressure difference across the walls of the fuel tank below a design threshold.

Although in some instances the pressure difference

would be zero, because sufficient mass flow of nitrogen-enriched air is introduced in the tank to exactly balance the increase of pressure as the aircraft descends, it is also possible that the aircraft is designed to withstand a given pressure differential across the walls of the tank, in other words providing the fuel tank with a design threshold for the pressure difference it can be exposed to during operation.

The Applicants have amended the claims to overcome the rejections of the Office. It is respectfully submitted that no new matter is believed to have been added by the amendment of the claims.

Withdrawal of the rejections is respectfully requested.

REJECTIONS under 35 U.S.C. § 102

Claims 1-4 and 6-10 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Schmutz, U.S. Patent No. 6,547,188. The Applicants respectfully disagree and traverse the rejection with an argument and amendment.

Schmutz discusses reducing the size and weight of the mechanical elements requires for fuel tank inerting, and providing a system which also requires a lesser supply of compressed air than in the prior art (see Schmutz col. 1 lines 44-49).

Thus, Schmutz provides, during a cruise phase of flight, a first fraction of air having a high content of inert

gas which is supplied at a low flow rate and then, during descent phase of flight a second fraction of air is provided with an inert gas content substantially less than that of the first fraction, but at a substantially greater flow rate. As such, the process of Schmutz is dissimilar to the present invention. However, the distinctive feature in the present invention is that the air separation means provides the whole of the air required to be charged into the fuel tank, whereas Schmutz deliberately use ambient air from outside.

The absence of ambient air or "no-inward-venting process" is a substantial departure from Schmutz and overcomes a substantial problem in the arrangement of Schmutz. In Schmutz, the ambient air which is emitted into the fuel tank constitutes an explosion risk and, even though the percent oxygen content across the whole tank taken in aggregate may be below a danger level, the near influx of ambient air with typically 21% oxygen provides a local danger spot because it arrives in the tank at just one location and so, locally, the oxygen content is too high until the ambient air eventually disperses through the tank. Accordingly, in the present invention, the fuel tank system is designed so that the whole of the mass of air required to maintain the pressure difference across the walls of the fuel tank is provided by the air separation means and no inward venting is required.

The use of air from the air separation means alone to

maintain the pressure differential across the walls of the fuel tank within a design threshold is a fundamental departure from what was commonly understood to be an essential feature of such fuel systems, namely that there would be inward venting of ambient air during descent.

Thus, Schmutz fails to disclose "whereby **the whole of the mass of gas required to maintain the pressure** difference across the walls of the fuel tank below a design threshold is **provided by said air separation means,**" (emphasis added) as in claim 1.

For at least the reasons discussed above, claims 1, 6 and 8 and the claims dependent therefrom are not anticipated by Schmutz.

Withdrawal of the rejections is respectfully requested.

REJECTIONS under 35 U.S.C. § 103

Claims 5 and 11-13 stand rejected under 35 U.S.C. § 103(a) as being obvious over Schmutz in view of Applicant Admitted Prior Art (AAPA). The Applicants respectfully disagree and traverse the rejection with an argument.

AAPA adds nothing to the deficiencies of Schmutz as applied against the independent claims.

Further, the use of no ambient air as claimed in the arrangement of the present invention runs completely counter to the teaching of Schmutz which requires the presence of ambient

air in order to achieve its stated aim of reducing the size and weight of the mechanical component and reducing the required supply of compressed air. Therefore, there one of ordinary skill in the art would not arrive at the invention of the present claims combining Schmutz and the AAPA.

For at least the reasons discussed above, Schmutz and the AAPA, taken separately or in combination, fail to render obvious the features of claims 5 and 11-13.

Withdrawal of the rejections is respectfully requested.

SUMMARY

It is submitted that the claims satisfy the requirements of 35 U.S.C. §§ 112, 102 and 103. It is also submitted that claims 1-13 continue to be allowable. It is further submitted that the claims are not taught, disclosed or suggested by the prior art. The claims are therefore in a condition suitable for allowance. An early Notice of Allowance is requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any

overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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